INDEX TO VOLUME XI

TK1 .E495

Illustrated articles are designated by an asterisk (*) and editorials by a dagger (†). Matter is indexed by subjects discussed rather than by titles of articles, but such titles are in quotation marks when given literally.

A

"A Dead and Buried Old Man of the Sea" ..... †105
Air Compressor, Great Mullan 32
Air, Potential Curve of *210
Air Pumps, Edwards' *271
Aluminum on the Snoqualmie Line. 19
Aluminum Wire, Deflections in for Spans and Temperatures *191
"American Practice in Steam Turbine Building," by Francis Hodgkinson *43
Annealing Armor Plates by Electricity *115
Arid Land Reclamation ..... †280
Automobile, The Saxton Steam Draying *39

B

Bay Counties Power Co., Organization of 148
Bay Counties Power System Popularly Described, by Geo. P. Low. *145
"Bay Counties Transmission Line," by C. E. Dutcher *195
"Bending Rolls, Electrically Driven" *208

Biographical

Baker, Charles H *26
Baker, William T *25
Briggs, W. W *26
Carter, Geo. Edw *268
Dutcher, C. E *204
Estes, H. M *27
Smith, Frank E *232

Boilers, Babcock & Wilcox, described *269
"Breaking 800 Kilowatts at 15,000 Volts," by Lem S. Boggs 132
Bullock-Wagner Sales Combination. 110
Butte County Electric Power Company *32

C

California Central Gas and Electric Company 147
"California Central System, Experiences of the," by R. W. Van Norden 120
California Water and Forest Association ..... †280
Calorimeter, Carpenter's Separating. *241
Calorimeter, Barru's Throttling *241
Calorimeter, Lewis Thompson's *106
Calorimeter, Parr Standard *107
Calorimeter, The Dome ..... * 51
Calorimetry by the Lead Reduction Method 68
Calorimetry of Steam *238
Carquinez Span, Further Details of. *246
"Carquinez Transmission Span, The Great," by Geo. P. Low ..... * 91
Central California Electric Company 33
Centrifugal Pumps for Waterworks .. 222
Chambly Manufacturing Company .. 87
Choke Coils, Functions of 284
"Climatological Influences and Electrical Transmission," by Prof. A. G. McAdie *209
"Climatology, Four Factors In," ..† 66
Colgate Power House *156
"Compressed Air in Mining Transmission," by J. H. Ronaldson ... 85
Consolidated Light and Power Company of Redwood City, Cal ... *75-82

D

Dam, The Bay Counties *148, 154
Dam, The Snoqualmie *9
"Dark" Flashes 193
"Dark" Lightning Flashes *211
"Day Loads for Small Plants," .... †82
De Laval Steam Turbine ..... * 43
"Details of the Standard Electric Company's Pole Lines," by C. O. Poole *185
Diamonds, Warner's Artificial ..... †258
"Distribution by the Three-Phase System," by W. L. R. Emmet .. *282
Doble Waterwheels at Snoqualmie Falls *11
"Does Transmission Pay?" ..... †259
Dredgers of the Feather River ..... †159

E

Earnings, Bay Counties' ..... †259
"Echoes of the Transmission Convention," at San Jose *253
Edison Electric Company of Los Angeles *31, 183
Efficiency, Generator 276
Efficiency, Steam Engine 275
Efficiency, Transformer 278
"Electrical Standards, Concerning," †83
"Electric Improvement Company of San Jose" *249
"Electricity in San Mateo County, California," by C. H. Pennoyer .. *75
Electrometer, Recording *210-211
Energy of Natural Forces 146
Engineering Data Snoqualmie Transmission 25
Engines, McIntosh & Seymour *273
Exciter, Problem of the ..... †105
Extremely Long Distance Transmission Experience in ..... †224

F

"Farewell to Waterfalls" ..... †175
Feather River Dredgers *159
Fog, Moisture in 223
Fog, San Francisco *212
Forest Preservation ..... †280
Flume, the Bay Counties' *154
"Franchises in California" 89
Fulmite, Sawbridge's Invention of .. †259
Fusing, High Tension .. 118, 131, 135, 178

G

Gas Engine, A 360-horsepower "Union" ..... * 41
"Gas Engine Guarantees," by W. T. Magruder 70
Gas Engines, The Horsepower of ... 74
"Gas Power and Electrical Distribution" 141
Generators, Induction Motors as .... †105

H

"Hazard of the 'Phone" ..... †28
Heat Engine, John Waymouth's .... †258
High Tension Switches, Discussions of Papers on 176
High Tension Switches on the Central California Transmission 120
"High Tension Switches, The Latest General Electric Types of," by H. C. Wirt *137
"High Tension Switches, The Latest Stanley Types of," by W. Currie *133
"High Tension Switches, The Latest Westinghouse Types of," by W. M. McFarland *129
"High Tension Switches, The Martin," by F. V. T. Lee *121
High Tension Switches, The M. T. *117, *140, *278
"High Tension Switches, The Telluride 40,000-volt," by G. Converse 141
"High Tension Switching, Experiences in," by Robert McF. Doble 140
"High Tension Switching, Suggestions in," by R. S. Masson *117
Hoists, The Utica *31
"Hoisting Duty, Polyphase Motors in" 87
Hoists in the Transvaal, Electric .. 57
"Hoists on the Comstock, Electric," by Leon M. Hall *205
Hydraulic Works, Cost of 27

I

"Independent Electric Light and Power Company" *269
Independent Electric Light and Power Company, Wave Forms .. *266
"India, Electrical Construction in," by A. C. Jewitt *261
Induction Motors and Water Wheels for Exciters ..... †105
"Industrial Gas," by Frank H. Bates
Part XVII *51
Part XVIII *68
Part XIX *106
Part XX *203
Insulator, Advantages of a Combination 103
Insulator, Carquinez Strain *2
"Insulator, Development of the Locke," by Fred M. Locke *26
"Insulator Losses, High Tension," .†22
Insulator Pins, The Wood for ..... †174
Insulators, Carquinez Span Saddle and Strain *95
Insulators for Extreme Voltages 266
Insulator, the Locke Eave-trough Type *157
Irrigation, President Roosevelt on .. †280
Irrigation, Pumping for 218
"Isker-Sophia Power Transmission," by F. C. Perkins *18-

INDEX TO VOLUME XI

TK1 .E495

Illustrated articles are designated by an asterisk (*) and editorials by a dagger (†). Matter is indexed by subjects discussed rather than by titles of articles, but such titles are in quotation marks when given literally.

A

"A Dead and Buried Old Man of the Sea" ..... †105
Air Compressor, Great Mullan 32
Air, Potential Curve of *210
Air Pumps, Edwards' *271
Aluminum on the Snoqualmie Line. 19
Aluminum Wire, Deflections in for Spans and Temperatures *191
"American Practice in Steam Turbine Building," by Francis Hodgkinson *43
Annealing Armor Plates by Electricity *115
Arid Land Reclamation ..... †280
Automobile, The Saxton Steam Draying *39

B

Bay Counties Power Co., Organization of 148
Bay Counties Power System Popularly Described, by Geo. P. Low. *145
"Bay Counties Transmission Line," by C. E. Dutcher *195
"Bending Rolls, Electrically Driven" *208

Biographical

Baker, Charles H *26
Baker, William T *25
Briggs, W. W *26
Carter, Geo. Edw *268
Dutcher, C. E *204
Estes, H. M *27
Smith, Frank E *232

Boilers, Babcock & Wilcox, described *269
"Breaking 800 Kilowatts at 15,000 Volts," by Lem S. Boggs 132
Bullock-Wagner Sales Combination. 110
Butte County Electric Power Company *32

C

California Central Gas and Electric Company 147
"California Central System, Experiences of the," by R. W. Van Norden 120
California Water and Forest Association ..... †280
Calorimeter, Carpenter's Separating. *241
Calorimeter, Barru's Throttling *241
Calorimeter, Lewis Thompson's *106
Calorimeter, Parr Standard *107
Calorimeter, The Dome ..... * 51
Calorimetry by the Lead Reduction Method 68
Calorimetry of Steam *238
Carquinez Span, Further Details of. *246
"Carquinez Transmission Span, The Great," by Geo. P. Low ..... * 91
Central California Electric Company 33
Centrifugal Pumps for Waterworks .. 222
Chambly Manufacturing Company .. 87
Choke Coils, Functions of 284
"Climatological Influences and Electrical Transmission," by Prof. A. G. McAdie *209
"Climatology, Four Factors In," ..† 66
Colgate Power House *156
"Compressed Air in Mining Transmission," by J. H. Ronaldson ... 85
Consolidated Light and Power Company of Redwood City, Cal ... *75-82

D

Dam, The Bay Counties *148, 154
Dam, The Snoqualmie *9
"Dark" Flashes 193
"Dark" Lightning Flashes *211
"Day Loads for Small Plants," .... †82
De Laval Steam Turbine ..... * 43
"Details of the Standard Electric Company's Pole Lines," by C. O. Poole *185
Diamonds, Warner's Artificial ..... †258
"Distribution by the Three-Phase System," by W. L. R. Emmet .. *282
Doble Waterwheels at Snoqualmie Falls *11
"Does Transmission Pay?" ..... †259
Dredgers of the Feather River ..... †159

E

Earnings, Bay Counties' ..... †259
"Echoes of the Transmission Convention," at San Jose *253
Edison Electric Company of Los Angeles *31, 183
Efficiency, Generator 276
Efficiency, Steam Engine 275
Efficiency, Transformer 278
"Electrical Standards, Concerning," †83
"Electric Improvement Company of San Jose" *249
"Electricity in San Mateo County, California," by C. H. Pennoyer .. *75
Electrometer, Recording *210-211
Energy of Natural Forces 146
Engineering Data Snoqualmie Transmission 25
Engines, McIntosh & Seymour *273
Exciter, Problem of the ..... †105
Extremely Long Distance Transmission Experience in ..... †224

F

"Farewell to Waterfalls" ..... †175
Feather River Dredgers *159
Fog, Moisture in 223
Fog, San Francisco *212
Forest Preservation ..... †280
Flume, the Bay Counties' *154
"Franchises in California" 89
Fulmite, Sawbridge's Invention of .. †259
Fusing, High Tension .. 118, 131, 135, 178

G

Gas Engine, A 360-horsepower "Union" ..... * 41
"Gas Engine Guarantees," by W. T. Magruder 70
Gas Engines, The Horsepower of ... 74
"Gas Power and Electrical Distribution" 141
Generators, Induction Motors as .... †105

H

"Hazard of the 'Phone" ..... †28
Heat Engine, John Waymouth's .... †258
High Tension Switches, Discussions of Papers on 176
High Tension Switches on the Central California Transmission 120
"High Tension Switches, The Latest General Electric Types of," by H. C. Wirt *137
"High Tension Switches, The Latest Stanley Types of," by W. Currie *133
"High Tension Switches, The Latest Westinghouse Types of," by W. M. McFarland *129
"High Tension Switches, The Martin," by F. V. T. Lee *121
High Tension Switches, The M. T. *117, *140, *278
"High Tension Switches, The Telluride 40,000-volt," by G. Converse 141
"High Tension Switching, Experiences in," by Robert McF. Doble 140
"High Tension Switching, Suggestions in," by R. S. Masson *117
Hoists, The Utica *31
"Hoisting Duty, Polyphase Motors in" 87
Hoists in the Transvaal, Electric .. 57
"Hoists on the Comstock, Electric," by Leon M. Hall *205
Hydraulic Works, Cost of 27

I

"Independent Electric Light and Power Company" *269
Independent Electric Light and Power Company, Wave Forms .. *266
"India, Electrical Construction in," by A. C. Jewitt *261
Induction Motors and Water Wheels for Exciters ..... †105
"Industrial Gas," by Frank H. Bates
Part XVII *51
Part XVIII *68
Part XIX *106
Part XX *203
Insulator, Advantages of a Combination 103
Insulator, Carquinez Strain *2
"Insulator, Development of the Locke," by Fred M. Locke *26
"Insulator Losses, High Tension," .†22
Insulator Pins, The Wood for ..... †174
Insulators, Carquinez Span Saddle and Strain *95
Insulators for Extreme Voltages 266
Insulator, the Locke Eave-trough Type *157
Irrigation, President Roosevelt on .. †280
Irrigation, Pumping for 218
"Isker-Sophia Power Transmission," by F. C. Perkins *18-

K

Page

Keswick Electric Power Company.. 34

L

Lagging Currents, A Simple Test for 35
Lecco, Sondrio and Chiavenna Three-phase Railway..... 59
Lightning Arresters, Functions of. . 284
Lightning Arrester Grounds..... 116
"Lightning Arresters and Wireless Telegraphy," by C. W. Hutton. 103
Lightning, Photographs of *211
Link Coupling, The Pelton..... *34

Literature

"Handbook of the Telegraph," by A. E. Loring..... 42
"Progress of Invention in the Nineteenth Century," by E. Byron..... 45
"Theory and Calculation of Alternating Current Phenomena," by C. P. Steinmitz 184
Load Factor, The Commercial Import of..... 38
"Long Transmissions, Elements of Design in," by F. A. C. Perrine, D. Sc.....*265
Long Transmission, Extremely 166
Long Transmissions, Precautions Necessary in..... 257

M

Map of Bay Counties' System..... 172
Map of Oakland Transit System.... 171
"Martin High Potential Switch," by F. V. T. Lee.....*121
Mining Pumps..... 219
Montana Water, Electric Power and Mining Company.... 32
"Motor-Generators or Rotaries".. .. 183
Motors in the Union Iron Works....*112
"Mr. Martin's Original Argument"†221

N

National Irrigation Association.....†280
Nevada County Electric Power Company..... .....*147, 183
Nevada County, Electric Power in .. 163
Niagara Transmission, Growth of the †84

O

Oakland Transit Company, Bay Counties' Power for the.... 167

Obituary

Brayton, Jr., Albert P.... 142
Godfrey, James W.... .....*267
Jackson, E. M..... 58
Pope, Mrs. R. W.... 58
"Ocean Cable Making and Laying," by Joseph W. Marsh.... 35
"Oil Cooling Works Both Ways," by R. W. Van Norden 247

P

Paderno-Milan Transmission Line.. †196
Pelton Waterwheels, Enormous Use of..... 31
Peninsula Lighting Company 75
"Perpetual Lamp" of Henry Mills .†259
Petroleums, Examinations of..... 203
Phosphorous Obtained Electrolytically..... 41
Pipe Lines, Friction in *223
Pipe Line, The Bay Counties'.. .....*156
Platinum, The Use and Care of..... 41

Page

Pole Line Construction.....*185-*195
Pole Line Cutouts of the Los Angeles Edison Transmission..... . 183
Pole Line Cutout, Stark.....*183
Poles, The Diameters of Round..... 73
Pomona Plant, The Passing of the.. 33
"Polyphase Circuits, Calculating". *247
"Practical Power Transmission," by John Martin..... 227
Pressure of Water, The Static..... *81
Precautions in Long Distance Transmission..... 257
Pumping, Discussion on Electric. .. 223
"Pumping, Possibilities and Limitations of Electric," by L. A. Hicks, C. E..... 216
Pumps, Speed of..... 204

R

"Railway Motor Performance" *56
"Reactance of High Tension Transformers"..... 142
"Recent High-head Pelton Waterwheel Installations," by Geo. J. Henry, Jr..... *30
Redlands Electric Light and Power Company..... 31
Regulating Nozzles at Snoqualmie Falls..... *13
Reservoir, Filling the Lake Francis. 161
"Rheostat, A 750-kilowatt, High Tension," by C. W. Hutton..... 81
"Rock Drill, The Gardner Electric" *89
"Rotaries, Starting the Buffalo," by H. G. Stott..... 116
"Rotaries *vs.* Motor Generators"... 183

S

"Safeties" in High Tension Pole Lines.....*201
San Antonio Light and Power Company..... 33
San Francisco and San Mateo Electric Railway Company 278
San Francisco, Climate of. 212
San Gabriel Electric Company.....*141
San Joaquin Electric Company, Hydraulic Effects at Powerhouse of the..... 155
San Mateo Electric Company 75
San Mateo Gas Light Company..... 75
"Schools, Engineering and Architectural," by L. M. Forsyth *260
"Secrets, Great Lost".... .....†258
Shop Driving, Electric Motors in...*112
Single-phase Operation from Three-Phase Circuits *282
Slippage in Induction Motors..... 102
Snoqualmie Falls, A Description of. *5
Snoqualmie Falls Power Company, Organization of the.....6, 26
Snoqualmie Falls Power Transmission.... ..... *8
Snoqualmie Transmission, Extensions in the..... .....*233
Snoqualmie Watershed, Topography and Meterology of the..... *6
Smoke Consumer, Finlay's.....†259
Southern California Power Transmission *31
Span, Carquinez.... ..... *91
Sparking Distances in Air.....*181
Stanford University, Electrical Service in..... 78
Steam Engine Efficiency 275

Page

"Steam Turbine Applications in Europe" by Frank C. Perkins.. *62
Steam Turbines..... ..... *43
Substation, Independent Electric Light and Power Company's, Mission street.....*117
Switches, High Tension. See High Tension Switches.
Switching, High Tension. See High Tension Switching.
"Switches Not Opened Under 'Shorts'," by Max Hebgen..... 137
"Switching That's Bewitching," by J. S. Eastwood..... 139
Switch, The Helios Air-blast..... 132
"Swiss Alternating Current Power Plants," by Frank C. Perkins... *73
Symphony Hall, The Isolated Electric Plant in..... ..... *74
Synchronizer, The Lincoln, by R. S. Masson..... .....*252

T

Talium, Adams' Discovery of. .....†258
"Telegraph, Lateral Induction and the," by F. P. Medina.... 207
Telephone, Hazard of the..... 28
"Telephone Service in Connection With Long Distance Power Transmission," by T. E. Thebe-rath..... 168
Telephony, Discussion on Transmission..... 224
Telephony Over the Paderno-Milan Transmission Line ....†196
Telephony Over Transmission Pole Lines.....†125
Telluride Power Transmission Company.....34, 220
Testing Sets, Stanley High Voltage.*180
Tests on a 153-mile Experimental Line..... 22
Thomson Electric Annealer.... ....*115
"Three-phase Railway Systems in Europe," by W. J. Hammer..... 59
"Thunderstorms," by A. F. Sims...*215
"To Meet at San Jose" ....†104
Tool Driving, Electric Motors in....*112
"Topographical and Meteorological Characteristics of the Snoqualmie Watershed," by Charles H. Baker *6
Towers of the Carquinez Span...*93, 201
Towers of the Standard Pole Line.. 187
Trades Unions and Asiatic Labor...†175
"Transformers, On the Cooling of," by W. S. Sessions..... 264
"Transformers, Reactance of High Tension".... 142
"Transmission and California Industries"..... ..... †50
"Transmission Conductors, Cost of" *57
Transmission Convention, Papers of the San Jose..... .....†124
Transmission, Elementary Principles of..... 156
Transmission Line, The Niagara-Buffalo..... 88
Transmission, The Butte County... 32
Transmission, The Granite and Bi-Metallic..... 32
Transmission, The Keswick..... 34
"Transmission, The La Sarraz," by Frank C. Perkins *279
Transmission, The Newcastle and Auburn-Sacramento..... 33
Transmission, The Redlands..... . 31

Page

Transmission, The Southern California *31
Transposition in the Bay Counties' Line 195
Transposition of the Snoqualmie Lines *19
Turbine, The Steam *43
Transvaal, Electric Hoists in the 57

U

Underground Cables, 25,000 Volts on 40
"Union Iron Works, Electricity in the," by W. W. Hanscom *111

V

Page

Valve Gear, Gridiron *273

W

"Wireless Telegraphy and Lightning Arresters," by C. W. Hutton 103
Walking Over the Yuba Water System 152
"Washington's Greatest Transmission," by Robert McF. Doble... *8
"Water Power, Electrically Distributed," by A. D. Adams..... 126
"Water Power, Utilization of"..... †211
Waterwheel Performance, A Phenomenal Pelton 35

Page

Waterwheel Governing, The Mercury Column in 33
Waterwheels (Doble) at Snoqvalmie. *11
Waterwheels (Pelton) at Mullan, Idaho 32
Waterworks, Centrifugal Pumps for. 222
Welsbach Incandescent Electric Lamp 103
Westinghouse-Parson's Steam Turbine *45

Y

Yuba Power Company 148

AUTHORS

A

Page

Adams, A. D., on "Electrically Distributed Water Power" 126

B

Baker, Charles H., on "Topography and Meteorology of the Snoqualmie Watershed" *6
Bates, Frank H., on "Industrial Gas" *31, *68, *106, *238
Boggs, L. S., on "Breaking 800 Kilowatts at 15,000 Volts" 132

C

Converse, V. G., on "Telluride 40,000-volt Switches" 141
Currie, W., on "Stanley High Tension Switches" *133

D

Doble, Robert McF., on High Tension Switching 140
Doble, Robert McF., on the Snoqualmie Transmission *8
Dutcher, C. E., on Bay Counties' Pole Line *195

E

Eastwood, J. S., on High Tension Switching 139

F

Forsyth, L. M., on "Engineering and Architectural Schools" *260

H

Hall, Leon M., on Comstock Hoists. *205
Hammer, W. J., on Three-phase Railways 59
Hanscom, W. W., on "Electricity in the Union Iron Works" *111
Hebgen, Max, on Opening Switches Under "Shorts" 136
Henry, Jr., Geo. J., on "Recent High Head Pelton Water Installations" *30

Page

Hicks, L. A., on Electric Pumping.. 216
Hodgkinson, Francis, on Steam Turbines *43
Hutton, C. W., on High Tension Water Rheostats 81
Hutton, C. W., on "Lightning Arresters and Wireless Telegraphy" 103

J

Jewett, A. C., on "Electrical Construction in India" *268

L

Lee, F. V. T., on "Martin High Potential Switches" *120
Locke, Fred M., on "The Development of the Locke Insulator"..*263
Low, Geo. P., on "Great Carquinez Transmission Span" *91
Low, Geo. P., on Popular Description of Bay Counties' System *145
Low, Geo. P., on "The Saxton Steam Dray" *39

M

Magruder, W. T., on "Gas Engine Guarantees" 70
Marsh, J. A., on Ocean Cables..... 35
Martin, John, on "Practical Power Transmission" 227
Masson, R. S., on "The Lincoln Synchronizer" *252
Masson, R. S. on "Suggestions in High Tension Switching" *117
McFarland, W. M., on Westinghouse High Tension Switches *129
McAdie, Prof. A. G., on "Climatological Influences and Electrical Transmission" *209
Medina, F. P., on "Lateral Induction and the Telegraph" 207

P

Page

Emmet, W. L. R., on Three-Phase Distribution *282
Perkins, Frank C., on "Isker-Sophia Power Transmission" *182
Perkins, Frank C., on La Sarraz Transmission *279
Perkins, F. C., on Steam Turbines in Europe *62
Perkins, F. C., on Swiss Power Plants *73
Perrine, F. A. C., on "Elements of Design in Long Transmissions".*265
Poole, C. O., on Standard Electric Company's Pole Lines..... .....*185

R

Ronaldson, J. H., on "Compressed Air in Mining Transmission"... 85

S

Sessions, W. S., on Transformer Cooling 264
Sims, A. F., on "Thunderstorms"..*215
Stott, H. G., on "The Starting of Rotaries at Buffalo" 116

T

Taylor, Phil S., on M. T. Switches..*140
Theberath, T. E., on Telephone Service Over Transmission Pole Lines 168

V

Van Norden, R. W., on Oil Cooling. 247
Van Norden, R. W., on "Switching Experiences of the California Central System" 120

W

Wirt, H. C., on General Electric High Tension Switches..... ..*137